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NSSDC AND WDC-A-R&S DOCUMENT AVAILABILITY AND DISTRIBUTION SERVICES

MAY 1974

NSSDC/WDC-A-R&S

NATIONAL AERONAUTICS AND SPACE ADMINISTRATION • GODDARD SPACE FLIGHT CENTER, GREENBELT, MD.

NSSDC/WDC-A-R&S 74-10

NSSDC and WDC-A-R&S
Document Availability and Distribution Services

National Space Science Data Center (NSSDC)/
World Data Center A for Rockets and Satellites (WDC-A-R&S)
National Aeronautics and Space Administration
Goddard Space Flight Center
Greenbelt, Maryland 20771

May 1974

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INTRODUCTION

Purpose

This publication describes the documents available from the National Space Science Data Center (NSSDC) and the World Data Center A for Rockets and Satellites (WDC-A-R&S). The availability, costs, ordering procedures for documents presently available, and the procedures for obtaining future documents are given.

Background

NSSDC was established by the National Aeronautics and Space Administration (NASA) to further the widest practicable use of reduced data obtained from space science investigations and to provide investigators with an active repository for such data. NSSDC is responsible for the active collection, organization, storage, announcement, retrieval, dissemination, and exchange of data received from satellite experiments, sounding-rocket probes, and high-altitude aeronautical and balloon investigations. In addition NSSDC collects some correlative data, such as magnetograms and ionograms, from ground-based observatories and stations for NASA investigators and for on-site use at NSSDC in the analysis and evaluation of space science experimental results. Further information on the activities and operations of NSSDC is included in the information pamphlet *National Space Science Data Center* which can be obtained by completing the order form at the end of this document.

WDC-A for Rockets and Satellites is operated in the United States by NASA under the auspices of the Geophysics Research Board of the U.S. National Academy of Sciences. Because of its location contiguous to NSSDC, this WDC-A subcenter can effectively cooperate with NSSDC in obtaining reduced and analyzed data to satisfy requests from scientists outside the United States.

The WDC-A for Rockets and Satellites periodically prepares and distributes catalogs and reports. The publications contain up-to-date listings of information on rockets and satellites, based on launching reports received during the publication period. The publications are distributed to scientists, institutions, other WDC subcenters, and to the Committee on Space Research (COSPAR). Publications issued by WDC-A-R&S are described later in this document. Information on the history, scope of operation, and services available through this WDC-A subcenter is documented in the information pamphlet *World Data Center A for Rockets and Satellites*. This pamphlet can be obtained by completing the order form at the end of this document.

Document Availability and Ordering Procedures

Availability

NSSDC will provide without charge single copies of documents identified in this publication or provide automatic distribution services for selected categories of documents upon request from individuals who require the publications for scientific or educational use and who are affiliated with organizations of the following types located in the United States:

- NASA installations, NASA contractors, or NASA grantees
- Other U.S. Government agencies, their contractors, or grantees
- Universities and colleges
- State and local governments
- Non-profit organizations.

These same services are available to similar types of organizations outside the United States through the WDC-A for Rockets and Satellites.

Anyone who meets the criteria specified above and who wishes to obtain a copy of a document or to be placed on a mailing list to routinely receive a particular category of document should specify why the document is needed, the subject of the work, the name of the organization with which he is affiliated, and any Government contracts which require him to have access to this information. Individuals who do not meet the criteria specified above may obtain copies of documents at cost through:

National Technical Information Service
U.S. Department of Commerce
P. O. Box 1553
Springfield, Virginia 22151
U.S.A.

Ordering Procedures for Qualified NSSDC and WDC-A-R&S Users (as defined previously)

A user may obtain documents in any of the following ways:

1. Letter request
2. Document Request Form (contained at the end of this document)
3. Telephone request
4. On-site request.

Users who reside in the U.S. should direct requests for documents to:

National Space Science Data Center
Code 601.4
Goddard Space Flight Center
Greenbelt, Maryland 20771

Telephone: (301) 982-6695

Users who reside outside the U.S. should direct requests for documents to:

World Data Center A for Rockets and Satellites
Code 601
Goddard Space Flight Center
Greenbelt, Maryland 20771
U.S.A.

Telephone: (301) 982-6695

When ordering individual documents, or requesting to be placed on a mailing list for a particular document category, the user must provide the general information requested in the preceding paragraph on Availability. In addition, the user must identify each of the documents by Order Number and Title as given in the Document Categories section of this document. The form of document (hardcopy or microfiche) required must also be specified. All documents are available in microfiche. Those documents that also are available in hardcopy are marked with an asterisk (*) preceding the title. The Document Request Form at the end of this document is intended to serve as a convenient mechanism for users to order documents described herein. When orders are received for documents which have been superseded or supplemented by later issuances, the user will be provided with the latest issue including any supplements.

DOCUMENT CATEGORIES

Documents Describing the Operation of NSSDC and WDC-A-R&S

Document Description

These documents describe the functions of the National Space Science Data Center (NSSDC), its purposes, operational procedures, and sphere of activity. The documents cover such areas as explanations of the flow of data and information, descriptions of the information and data processing systems, and interfaces between NSSDC and its data users. Another document also describes the functions of the World Data Center A for Rockets and Satellites (WDC-A-R&S), its history, scope of operation, services, and publications prepared.

Document Frequency

These documents are written on an "as needed" basis.

Document Availability

These documents are available through standard ordering procedures. The documents available are as follows:

Order No.	Title
B06841	*Fava, J. A., Michlovitz, C. K., and Karlow N., *Responding to Requests at the National Space Science Data Center*, NASA/GSFC X-601-70-162, May 1970.
B07052	*Vette, J. I., and Karlow, N., *Data Management at the National Space Science Data Center*, NASA/GSFC X-601-69-528, December 1969. (Also published in *Journal of Spacecraft and Rockets*, Volume I, No. 10, October 1970.)
B06900	**National Space Science Data Center*, information pamphlet.
B01268	**World Data Center A for Rockets and Satellites*, information pamphlet.

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*Available in hardcopy.

Announcements of Satellite Experiment Data Availability

Document Description

A new concept for announcing the availability of data at NSSDC has been adopted. This concept is based on the Selective Dissemination of Information (SDI) principle. However, because this new system will not be implemented until the latter part of 1974, it is important to understand the present method of data announcement as well as the future SDI system. Consequently, the following paragraphs will describe the present *Data Catalog of Satellite Experiments* and the rationale and procedures to be followed in the SDI system. Finally, the eight SDI categories to be used by NSSDC for announcing satellite experiment data availability will be defined.

Current System - The satellite experiment data available as of June 1973 are described in the *Data Catalog of Satellite Experiments* (December 1971) and its supplement (October 1973). In addition to announcing the availability of satellite experiment data and describing these data, these volumes inform users of the policies and procedures associated with the data dissemination services offered by NSSDC. Both volumes contain two major sections. Section 1, Data Description, contains descriptions of data available at or through NSSDC as well as descriptions of the experiments and spacecraft from which the data originated. The other major section contains a series of indexes that reference the page number of the data descriptions. These indexes contain:

- A chronological listing identifying the standard names of all spacecraft, experiment, and data descriptions presented in Section 1
- An alphabetical listing of all spacecraft described, cross-referenced by common names and alternate names
- A listing of the original institutions of the principal investigators for all experiments described
- A listing of the investigators associated with the experiments and their current affiliations
- Two displays of information about experiment data coverage oriented by phenomenon measured, one a series of bar graphs depicting time intervals of experiment data coverage for fields and particles data, and the other a listing of all experiments sorted by phenomenon measured.

Planned SDI System - A number of factors have been involved in the decision to implement the SDI system. The rapidly increasing data base has grown to the point where a single-volume catalog becomes large and unwieldy. Furthermore, printing and distributing a large catalog is not cost effective since most users require only a portion of the information involved. The SDI approach to a catalog divided into separate volumes will be more economical and better attuned to the needs of users. It will allow for the dissemination of information about data availability to only those persons who have expressed interest in particular categories of data.

This new SDI system has been adopted based on a 1972 survey of discipline interest category requirements and preferences of data catalog users. Users were requested to indicate which discipline categories corresponded to their interests. The response to the survey indicated that users strongly approved of the planned division of the catalog. Based on this response, the types of satellite experiment data acquired by NSSDC have been divided into the following eight major categories: Astronomy, Geodesy and Gravimetry, Ionospheric Physics, Meteorology, Particles and Fields, Planetary Atmospheres, Planetology, and Solar Physics. Users who wish to receive data announcements relative to these categories should complete the order form included with this document. They will be placed on the appropiate distribution lists based on the categories selected.

The SDI approach will consist of the periodic publication of data announcement bulletins (DABs) and the data catalog, which will be divided into the eight discipline volumes. The new system will be implemented initially in the early fall of 1974 by the publication of a DAB for each SDI category. These DABs will describe those data sets and associated experiments that were not included in the 1971 data catalog or the October 1973 supplement, but which are suitable for announcement as of the publication date for that SDI category. The initial set of DABs is intended as an interim way of announcing the availability of data by SDI category until the system is fully implemented by the next issue of the data catalog (in early 1975). That catalog will be cumulative and will consist of an index volume and the eight subject volumes corresponding to the eight SDI categories.

The index volume will contain indexes by Spacecraft Name, Investigator Name, Original Experiment Institution and/or Current Experiment Institution, and Phenomenon Measured (listings and bar graphs). This volume will also include descriptions of spacecraft from which NSSDC

has acquired data, as well as descriptions of ephemeris or other special spacecraft-related data sets appropriate for announcement. Each index will refer to the subject volume in which the brief description of the experiment or data set can be found. The index volume also will include information on availability of the subject catalogs, data ordering information, etc. It will be sent to all participants in the SDI system.

Cumulative subject volumes containing descriptions of appropriate data sets and their associated experiments will be published for each of the eight SDI categories. The subject catalogs will be announced as available in the index volume; however, since the index volume alone may satisfy the needs of many users, subject volumes will be provided only upon special request.

After the cumulative data catalog has been published in early 1975, new DABs, which will serve to announce new data acquisitions, will be published by SDI category at approximately 3-month intervals. The frequency of production of the cumulative subject catalogs, after the publication of the first issue, will be flexible. The publication of a new volume will depend upon the number of requests for data in that particular category and upon the amount of data received after the original issuance. NSSDC plans to publish an annual cumulative index volume.

SDI Category Definitions - The types of satellite experiment data acquired by NSSDC have been divided into eight major categories which are defined in the following paragraphs. It should be noted that the definitions of these categories reflect the best judgment of NSSDC acquisition scientists in light of the NSSDC data base and file structure, as well as anticipated use of data. They are not intended as definitive descriptions of discipline boundaries.

• Astronomy - This category includes all observations of astronomical objects, both outside and within the solar system, made at various wavelengths (i.e., gamma rays through radio waves). Observed objects outside the solar system include stars, nebulae, galaxies, and all other matter. Observed objects within the solar system include zodiacal light sources, meteoroids, asteroids, dust, micrometeorites, and planetary radio emission sources. Other planetary observations (see Planetary Atmospheres, Planetology, or Ionospheres) and solar observations (see Solar Physics) are excluded. Observations of cosmic-ray particles are listed under Particles and Fields. Celestial mechanics measurements are included under Geodesy and Gravimetry.

• Geodesy and Gravimetry - This category includes experiments that measure size, shape, mass, coordinates, altitudes; or gravity fields; or experiments concerned with the mapping of a body. It includes the mechanics of orbiting artificial and natural bodies.

• Ionospheric Physics - This category includes observations of the ionosphere, which is defined as that region of a planetary atmosphere which contains a significant number of free thermal electrons on a daily basis and which has a free electron density maximum in the vertical direction. Its upper and lower extents are roughly defined as the areas in which densities approach 10^{-4} of the peak values. Included are all in situ and remotely sensed observations of ionospheric charged particles with thermal energies. This category is used for remotely sensed propagation experiments that primarily focus on the ionosphere, including very low frequency (VLF) and extremely low frequency (ELF) experiments; for other remotely sensed propagation experiments, an appropriate category, such as Particles and Fields, is used.

• Meteorology - This category includes observations made in the earth's hydrosphere and atmosphere up to the mesopause or D region.

• Particles and Fields - The subcategory Particles includes all in situ charged-particle measurements except those of thermal plasma in terrestrial or other planetary ionospheres (see Ionospheric Physics). It includes all neutron measurement and electromagnetic signal propagation experiments designed to measure columnar electron densities (except those in which the most significant portion of the free electrons within the column is within an ionosphere). The subcategory Fields includes all in situ measurements of electric and magnetic fields. It includes VLF and ELF experiments other than those primarily concerned with observing ionospheric properties. It excludes electromagnetic radiation (radio waves through gamma waves) propagating away from remote sources. (In such cases, either Solar Physics or Astronomy is used, as appropriate.)

• Planetary Atmospheres - This category includes all observations of the gaseous envelope above the surface of a planet. For the earth the lower limit for observations that belong in this category is about 65 km. (For studies below this altitude, Meteorology is used.) The upper limit is defined as the transition level of the lightest gas. This region overlaps the ionosphere for planets which have an ionosphere; however, ionospheric observations are restricted to observations related to the charge aspects of matter, while Planetary Atmospheres relates to the mass aspects of matter (e.g., composition measurements). For cases in which both atmospheric and ionospheric categories apply, both may be used. For the terrestrial atmosphere the region below the mesopause or D region (near 65 km) is assigned to Meteorology.

• Planetology - This category includes experiments for the purpose of deriving and analyzing data from the solid or liquid parts (excluding the oceans of the earth) of any solar system body. Chemical, physical, and geologic studies of properties of gross or small surface features, materials of the surface, internal properties, magnetic properties, etc., are included. Gravitational and geodetic experiments are excluded from this category (see Geodesy and Gravimetry). When the primary purpose of the study is to measure the residual effects of some external phenomena (such as meteorite or cosmic-ray impacts), the external phenomena should determine the choice of SDI category. If necessary, the experiment may be assigned to more than one SDI category.

• Solar Physics - This category includes all solar observations, regardless of the wavelength being observed. The source region considered here extends outward from the sun to include that area observed with solar coronagraphs (nominally to 10 solar radii). All in situ measurements of electric or magnetic fields and of particles for which the source is believed to be the sun are considered to fall in the domain of Particles and Fields.

Document Frequency

The components of the SDI system are scheduled to appear as follows. Data announcement bulletins (DABs) by SDI category, which will contain those data set records not included in the December 1971 data catalog or the October 1973 supplement, will be published in the early fall of 1974. The cumulative index volume and cumulative subject volumes of the new data catalog will be published in early 1975. Subsequent DABs by SDI category will be published at approximately 3-month intervals.

Document Availability

These documents are available through standard ordering procedures. The documents available are as follows:

Order No.	Title
B11290	**Data Catalog of Satellite Experiments*, NSSDC 71-20
B17901	**Data Catalog of Satellite Experiments - Supplement No. 1 to NSSDC 71-20*, NSSDC 73-11

*Available in hardcopy.

Persons wishing to participate in the SDI system should complete the appropriate portion of the order form accompanying this document.

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Report on Active and Planned Spacecraft and Experiments

Document Description

This report provides the professional community with information on measurements being made in orbit or those being planned in a broad range of scientific disciplines. By providing descriptions of the spacecraft and experiments, as well as approximate time periods when data are being accumulated, it is hoped that this document will be useful to people interested in the scientific, applied, and operational uses of such data. Furthermore, for persons planning or coordinating observational programs employing different techniques such as rockets, balloons, airplanes, ships, and buoys, this document can provide insight into contributions that may be provided by orbiting instruments.

The report contains summaries of spacecraft and experiments covering astronomy, earth sciences, meteorology, planetary sciences, geodesy and gravimetry, aeronomy, particles and fields, solar physics, life sciences, and material sciences.

Specifically not included in the report are navigational and communications satellites or passive satellites still actively tracked by optical or laser methods for geodetic or atmospheric drag studies, spacecraft having only continuous radio beacons used for ionospheric studies, classified spacecraft or experiments, and certain planned spacecraft or continuing series for which no information except the names are known.

The report is issued as an annual cumulative edition with periodic supplements (see Document Frequency). The cumulative edition contains descriptions of all pertinent scientific spacecraft and experiments which NSSDC knew to be operating or planned as of about 3 months prior to publication. Also included are a series of indexes which allow reference to the spacecraft descriptions by common and alternate names and to the experiment descriptions by investigator name, investigator institution, and phenomenon measured. The report also presents other timely information, such as lists of spacecraft and experiments which in the last year became inoperable, were turned off, or launched, and a summary of recent NSSDC data acquisitions.

The supplements to the report will contain updated or new descriptions of appropriate spacecraft and experiments and a revised cumulative index listing which will show the current operational status of the active, and launch dates of the planned spacecraft and experiments. The supplements will also contain other timely information (noted previously for the cumulative issue).

Document Frequency

The first report in the series was published in January 1974. A supplement to the original report will be published in July 1974, and a cumulative issue is planned for January 1975. Supplements beginning in 1975 will be published quarterly, and a cumulative issue will be published annually.

Document Availability

Standard ordering procedures for this document may be followed. A cumulative report identifying all active and planned experiments as of September 30, 1973, is presently available.

Order No.	Title
B18146	**Report on Active and Planned Spacecraft and Experiments*, NSSDC 74-01

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Lunar and Planetary Photography Catalogs and Users Guides

Document Description

These documents announce the availability of lunar and planetary pictorial data and aid investigators in the selection of photographs for study. Included in the documents are brief descriptions of the mission objectives, photographic equipment, and photographic coverage and quality. Comprehensive descriptions of the photographic and supporting data are included. Index maps depicting the photographic coverage from each mission and proof-print picture catalogs are often included as part of the photography package.

Document Frequency

These documents are published periodically as needed.

Document Availability

These documents are available through standard ordering procedures. The documents available are as follows:

Order No.	Title
B03920	**Apollo 8 Lunar Photography Package* (including data announcement bulletin (DAB), 70-mm frame index, and index maps), NSSDC 69-06
B04204	**Apollo 10 Lunar Photography Package* (including DAB, 70-mm and 16-mm frame index, and index maps), NSSDC 69-14
B06455	**Apollo 11 Lunar Photography Package* (including frame index, picture catalog, index maps, and data users note (DUN)), NSSDC 70-06
B06456	**Apollo 12 Lunar Photography Package* (including frame index, picture catalog, index maps, and DUN), NSSDC 70-09
B09141	**Apollo 13 Lunar Photography Package* (including index maps), NSSDC 70-18
B09144	**Apollo 14 Lunar Photography Package* (including DUN, frame index, picture catalog, and index maps), NSSDC 71-16
B12161	**Apollo 15 Lunar Photography Package* (including DUN and index maps), NSSDC 72-07
B15667	**Apollo 16 Lunar Photography Package* (including DUN and index maps), NSSDC 73-01
B06813	**Lunar Orbiter Photography Package* (including DUN and index maps), NSSDC 69-05
B08637	**Lunar Orbiter Photography Support Data*, NSSDC 71-13
B08007	**Mariner 6 and 7 Photography DUN*, NSSDC 71-09
B15804	**Mariner 9 Television Pictures DAB*, NSSDC 73-03
B18568	**Mariner 9 Television Pictures DAB, Supplement No. 1 to NSSDC 73-03*, NSSDC 74-05

*Available in hardcopy.

Order No.	Title
B05112	*Ranger 7, 8, and 9 TV Cameras DUN*, NSSDC 68-06
B05113	*Surveyor 1 (1966 45A) Lunar TV DUN*, NSSDC 67-30
B06812	**Catalog of Surveyor 1 Television Pictures*, NSSDC 68-10

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Meteorological Data Catalogs and Users Guides

Document Description

Meteorological data catalogs and users guides provide a comprehensive description of the acquisition, processing, and availability of data from experimental meteorological satellites.

The users guides, one for each spacecraft, provide potential data users with background information on the spacecraft and experiments as a basis for selecting, obtaining, and utilizing data in research studies. The basic spacecraft system operation and the objectives of the flight are outlined, followed by a detailed discussion of each of the experiments. The format, archiving, and access to the data are also described. Finally, the contents and format of the data catalogs are described. The users guide contains information which is current as of a few months prior to launch. Postlaunch information changes and corrections to the users guide are included in the data catalogs.

Usually, the data catalogs will provide detailed information on the type of data available, anomalies in the data, if any, and geographic location and time of the data. Photofacsimile reproductions of the data from infrared radiometer experiments are usually included in the data catalogs.

Document Frequency

Users guides are issued at the approximate time of the spacecraft launch date. The first data catalog for that spacecraft is issued approximately 6 months after launch, with subsequent volumes issued at 2- to 3-month intervals.

*Available in hardcopy.

Document Availability

These documents are available through standard ordering procedures. The following is a list of the data catalogs and the users guides presently available:

Order No.	Title
B04500	*Nimbus 1 Catalog & Users Manual, Volume 1, Photofacsimile Filmstrips*
B04501	*Nimbus 1 Catalog & Users Manual, Volume 2, Nimbus Meteorological Radiation Tapes - HRIR*
B04499	*Nimbus 1 Users Catalog: AVCS and APT*
B03406	*Nimbus 2 Users Guide*
B06573	*Nimbus 2 Data Catalog, Volume 1, 15 May - 30 June 1966* (d.o. 1-621)#
B06574	*Nimbus 2 Data Catalog, Volume 2, 1 - 31 July 1966* (d.o. 622-1034)
B06575	*Nimbus 2 Data Catalog, Volume 3, 1 - 31 August 1966* (d.o. 1035-1447)
B06576	*Nimbus 2 Data Catalog, Volume 4, 1 - 30 September 1966* (d.o. 1448-1846)
B06577	*Nimbus 2 Data Catalog, Volume 5, 1 October - 15 November 1966* (d.o. 1847-2458)
B06580	*Nimbus 2 MRIR Pictorial Data Catalog, Volume 1, 15 May - 21 June 1966* (d.o. 7-500)
B06581	*Nimbus 2 MRIR Pictorial Data Catalog, Volume 2, 22 June - 28 July 1966* (d.o. 504-984)
B06578	*Nimbus 2 HRIR World Montage Catalog, 20 May - 15 November 1966*
B06579	*Nimbus 2 AVCS World Montage Catalog, 20 May - 31 August 1966*
B03409	*Nimbus 3 Users Guide*
B04495	*Nimbus 3 Data Catalog, Volume 1, Part 1, 14 April - 31 May 1969* (d.o. 109-639)
B06583	*Nimbus 3 Data Catalog, Volume 1, Part 2, MRIR Pictorial Data, 14 April - 31 May 1969* (d.o. 112-639)
B06584	*Nimbus 3 Data Catalog, Volume 2, 1 - 30 June 1969* (d.o. 640-1041)
B06585	*Nimbus 3 Data Catalog, Volume 3, 1 - 31 July 1969* (d.o. 1042-1457)
B06586	*Nimbus 3 Data Catalog, Volume 4, 1 - 31 August 1969* (d.o. 1458-1872)
B06523	*Nimbus 3 Data Catalog, Volume 5, 1 September - 31 December 1969* (d.o. 1873-3508)

#The abbreviation d.o. means data orbits.

Order No.	Title
B07526	*Nimbus 3 Data Catalog, Volume 6, 1 January - 31 May 1970* (d.o. 3509-5529)#
B06861	*Nimbus 4 Users Guide*
B06582	*Nimbus 4 Data Catalog, Volume 1, 18 April - 22 May 1970* (d.o. 131-600)
B08253	*Nimbus 4 Data Catalog, Volume 2, 23 May - 30 June 1970* (d.o. 601-1123)
B08107	*Nimbus 4 Data Catalog, Volume 3, 1 July - 31 August 1970* (d.o. 1124-1956)
B09266	*Nimbus 4 Data Catalog, Volume 4, 1 September - 31 October 1970* (d.o. 1957-2775)
B11913	*Nimbus 4 Data Catalog, Volume 5, 1 November - 31 December 1970* (d.o. 2776-3594)
B12646	*Nimbus 4 Data Catalog, Volume 6, 1 January - 28 February 1971* (d.o. 3595-4386)
B14080	**Nimbus 4 Data Catalog, Volume 7, 1 March - 30 April 1971* (d.o. 4387-5205)
B14602	**Nimbus 4 Data Catalog, Volume 8, 1 May 1971 - 30 April 1972* (d.o. 5206-10,120)
B14758	**Nimbus 5 Users Guide*
B17697	**Nimbus 5 Data Catalog, Volume 1, 19 December 1972 - 31 January 1973* (d.o. 104-693)
B18140	**Nimbus 5 Data Catalog, Volume 2, 1 February - 31 March 1973* (d.o. 694-1435)
B12714	*Best of Nimbus*†
B03687	*TIROS 2 Radiation Data Catalog, 22 November 1960 - 13 April 1961*
B00820	*TIROS 2 Radiation Data Users Manual*
B03682	*TIROS 2 Radiation Data Users Manual Supplement*
B03688	*TIROS 3 Radiation Data Catalog, 12 July - 30 September 1961*
B00837	*TIROS 3 Radiation Data Users Manual*
B03681	*TIROS 3 Radiation Data Users Manual Supplement, Correction Models for Instrumental Response Degradation*
B00840	*TIROS 4 Radiation Data Catalog & Users Manual, 8 February - 30 June 1962* (d.o. 1-2039)
B00850	*TIROS 7 Radiation Data Catalog & Users Manual, Volume 1, 19 June - 30 September 1963* (d.o. 1-1525)
B06858	*TIROS 7 Radiation Data Catalog & Users Manual, Volume 2, 1 October 1963 - 29 February 1964* (d.o. 1532-3771)

*Available in hardcopy.
#The abbreviation d.o. means data orbits.
†*Best of Nimbus* contains the highlights of the 6-year history of Nimbus.

Order No.	Title
B06859	*TIROS 7 Radiation Data Catalog & Users Manual, Volume 3, 1 March - 30 September 1964* (d.o. 3783-6878)#
B06860	*TIROS 7 Radiation Data Catalog & Users Manual, Volume 4, 1 October 1964 - 19 June 1965* (d.o. 6966-10,812)

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Handbook of Correlative Data

Document Description

This document informs scientists of the availability of data potentially useful as correlative data in space-science studies. The handbook acquaints the user with many solar and geophysical phenomena and points the reader to more detailed discussions of the phenomena. It describes the nonsatellite data available from NSSDC and other facilities.

The handbook contains six major discipline-oriented parts covering galactic cosmic rays, solar electromagnetic radiation, energetic solar protons, geomagnetism, the ionosphere, and the neutral atmosphere. A miscellaneous data part covers magnetospherically trapped particles, solar wind, airglow, aurora, calendar records, activity charts, and Jovian radio emission. Each section includes a brief description of the phenomenon, reference to more extensive discussions of the phenomenon, reference to discussion of measurement techniques, a brief discussion of available data, the time periods for which data exist, the medium in which data are stored, sources of more extensive data availability listings, and sources from which the actual data can be obtained.

Document Frequency

An update of the *Handbook of Correlative Data* will be generated when warranted.

Document Availability

This document is available through standard ordering procedures.

Order No.	Title
B09137	**Handbook of Correlative Data*, NSSDC 71-05

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#The abbreviation d.o. means data orbits.
*Available in hardcopy.

Spacecraft Program Bibliographies

Document Description

The bibliographies serve as a consolidated reference source for information on specific spacecraft programs such as Orbiting Geophysical Observatory (OGO) and the Interplanetary Monitoring Platform (IMP) series.

The bibliographies include information pertinent to major accomplishments of the program, descriptions of the spacecraft (physical characteristics, orbit parameters, etc.) and spacecraft experiments, and references to the published scientific and technical papers, articles, and other documents covering instrumentation, experiment results, spacecraft missions, etc. Copies of articles and reports referenced in the bibliographies are available at many scientific and technical libraries. If not, they can be obtained from the author or ordered through document distribution centers such as NASA's Scientific and Technical Information Facility, National Technical Information Service, and the American Institute for Aeronautics and Astronautics. Document accession numbers are given in the bibliographic descriptions, when available, to aid in obtaining copies from the appropriate document distribution centers.

Document Frequency

A supplement to the bibliographies, or new cumulative editions, will be compiled as needed.

Document Availability

These documents are available through standard ordering procedures. Bibliographies presently available are as follows:

Order No.	Title
B11228	**IMP Series Report/Bibliography*, NSSDC 71-21
B06851	*OGO Program Bibliography*, NSSDC 68-14
B06849	*OGO Program Bibliography Supplement*, NSSDC 70-01

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*Available in hardcopy.

Reports on Models of the Trapped Radiation Environment

Document Description

Models of the energetic electrons and protons trapped in the magnetosphere have been constructed by Dr. J. I. Vette and colleagues since 1966 as syntheses of data collected by numerous satellites. Within a given model, the integral omnidirectional flux, J(E,B,L), is given as a product of flux, F(B,L), above a reference energy, E1, times a spectral function that may be exponential or power law. Instead of using a flux function and a spectral function, the latest electron models provide flux above several energies as functions of B and L. The earlier models, their derivation, and some of the data that were used are described and shown in the NASA SP-3024 document series. The most recent models have become sufficiently complex that each of these models is being documented in two NSSDC reports instead of one SP-3024 volume. One of these reports describes the derivation of the model and shows the data that were used, while the other presents the model itself.

The NASA SP-3024 series *Models of the Trapped Radiation Environment* and the NSSDC reports that have been used to document the most recent models describe the empirical models of the fluxes of energetic protons and electrons trapped in the geomagnetic field. These documents provide omnidirectional integral flux as a function of B, L, and energy. They also describe how these fluxes can be incorporated in some machine-sensible way to allow the user to calculate the flux that can be expected to be encountered on a given space mission. These documents also describe the data used in the development of the models and some restrictions or limitations with which the user should be familiar. They are intended to provide an understanding of the models and their uses to all users, from those interested in scientific uses and the comparison of data contained in the models to those interested only in the engineering applications.

Since the properties of trapped protons and electrons are quite different, the procedures for developing the models and updating them have also been different. The trapped proton fluxes observed in the past have not varied radically over the solar cycle, so a model that is independent of time has been adequate. Since there is one proton belt, inner and outer zone models are not needed. Separation into various models has depended on energy. The following table shows the energy ranges corresponding to the various proton models prepared to date. Where more than one model identification number (e.g., AP-4 and AP-6) for a given energy range is given in the table, the model identified at the bottom of the column is most current.

E (in MeV)	0.4 to 4	4 to 15	15 to 30	30 to 50	above 50
Proton Model Identification	AP-5	AP-4 AP-6	AP-2 AP-6	AP-1	AP-3 AP-7

The trapped electron models are distinctive in two characteristics: there are two belts, the inner and outer zones; and there is a definite temporal dependence caused both by the solar cycle and the Starfish event, which injected many electrons into the inner zone that have since been lost to the atmosphere. Electron models issued to date are listed in the following table. Regarding information appearing under the column headings inner zone and outer zone, within each epoch division, the higher AE numbers (e.g., AE-5) are more recent than the low numbers (e.g., AE-2).

Epoch	Inner Zone Electron Model	Outer Zone Electron Model
Solar Minimum	AE-1 (with Starfish)	AE-2 ($L < 6.0$), ($L = 6.6$)
	AE-2 (with Starfish)	
	AE-5 1975 projected (no Starfish) - to be published	AE-4
Solar Maximum	AE-2 1968 projected (Starfish removed)	AE-2 1968 projected
	AE-5 (some Starfish removed)	AE-4

Document Frequency

These documents are published approximately once every 2 years.

Document Availability

These documents are available through standard ordering procedures. The following documents are presently available:

Order No.	Title
	NASA SP-3024 *Models of the Trapped Radiation Environment*
B01302	**Volume 1. Inner Zone Protons and Electrons*, 1966. (This volume contains proton models AP-1, AP-2, AP-3, AP-4, and electron model AE-1.) Only AP-1 is current; AP-2 and AP-4 are superseded by Volume 5 (Order No. B06823); AP-3 is superseded by Volume 6 (Order No. B06822); and AE-1 is superseded by AE-5, Order No. B14860 and B14752.
B01303	*Volume 2. Inner and Outer Zone Electrons*, 1966. (This volume contains electron model AE-2.) This volume has been superseded by electron model AE-5, Order No. B14860 and B14752; and by electron model AE-4, Order No. B17797 and B14862.
B01304	*Volume 3. Electrons at Synchronous Altitudes*, 1967. (This volume contains electron model AE-3.) This volume has been superseded by electron model AE-4, Order No. B17797 and B14862.
B01305	**Volume 4. Low Energy Protons*, 1967. (This volume contains proton model AP-5.)
B06823	**Volume 5. Inner Belt Protons*, 1969. (This volume contains proton model AP-6.)
B06822	**Volume 6. High Energy Protons*, 1970. (This volume contains proton model AP-7.)
B07677	**Volume 7. Long Term Time Variations*, 1971. (This volume contains four papers which provide an excellent description of the long-term behavior of several components of the radiation belts.)

*Available in hardcopy.

Order No.	Title
B17797	**The AE-4 Model of the Outer Radiation Zone Electron Environment*, 1972, NSSDC 72-06. (This volume contains electron model AE-4.) This document may be used in conjunction with Order No. B14862.
B14860	**Inner Zone Electron Model AE-5*, 1972, NSSDC 72-10. (This volume contains electron model AE-5.) This document may be used in conjunction with Order No. B14752.
B14752	**Use of Inner Zone Electron Model AE-5 and Associated Computer Programs*, 1972, NSSDC 72-11. (This volume contains electron model AE-5.) This document may be used in conjunction with Order No. B14860.
B14862	**A Model Environment for Outer Zone Electrons*, 1972, NSSDC 72-13. (This volume contains a description of the derivation of electron model AE-4.) This document may be used in conjunction with Order No. B17797.

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World Data Center A for Rockets and Satellites Catalogues of Data

Document Description

These documents present summary information extracted from satellite and rocket launching announcements received by WDC-A for Rockets and Satellites during a particular reporting period. The documents consolidate information published in the monthly *Sounding Rocket Launching Report* and the biweekly *SPACEWARN Bulletin*, both of which are described later in this document. The catalogues are divided into two parts:

- PART A. SOUNDING ROCKETS - This part contains a summary listing of successful scientific sounding rocket launchings identified during the report period and a listing of the names and addresses of scientists and institutions conducting scientific experiments using these sounding rockets. The listing of sounding rocket launchings presents information such as launch date and time, agency rocket designation(s), sponsoring country/countries, launch site, experiment discipline(s), apogee, and principal experimenter(s) for each flight included

*Available in hardcopy.

in the report. Also included in this part of the catalogue is information concerning the availability of meteorological sounding rocket data and a table of rocket launch sites giving the site name and location in geographic and geomagnetic coordinates.

- PART B. ARTIFICIAL EARTH SATELLITES AND SPACE PROBES - This part contains a summary listing of spacecraft successfully launched during the report period. The listing is chronologically ordered by spacecraft launch date. The spacecraft popular name, its official COSPAR international designation, the spacecraft sponsoring country, the launch date, and the initial spacecraft orbit parameters (epoch date, apoapsis, periapsis, period, and inclination) are included for each spacecraft listed.

Document Frequency

Catalogues are usually prepared once a year. Cumulative catalogues are published every 5 years.

Document Availability

All requests for this document series should be addressed to WDC-A for Rockets and Satellites at the address given on page 3. A complete list of catalogues published by WDC-A-R&S follows.

Order No.	Identification
	Catalogues of Data Received During the Period:δ
B09250	1 July 1957 - 31 December 1961
B09251	1 January 1962 - 31 December 1963
B09252	1 January 1964 - 31 December 1965
B09254	1 January 1966 - 31 December 1967
B09255	1 January - 31 December 1968
B09256	1 January - 30 June 1969
B09257	1 July - 31 December 1969

δ In addition to the summary information concerning rocket and satellite launchings, the catalogues covering the period through 31 December 1971 also contain two listings that indicate documents received by WDC-A-R&S during the reporting period. One of the listings is ordered by subject discipline and the other by the name of the country from which the publication was forwarded. Because of the general availability of these documents through alternate sources (i.e., international abstract journals), WDC-A-R&S no longer publishes bibliographies of documents received.

Order No.	Identification
B12475	*7 March 1947 - 31 December 1971, Volume 1+
B12560	*1 January 1970 - 31 December 1971, Volume 2+
B18278	*1 January 1972 - 31 December 1973

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WDC-A-R&S Sounding Rocket Launching (SRL) Reports

Document Description

These reports contain descriptions of all successful scientific sounding rocket launchings identified by WDC-A-R&S during the particular reporting period. Each report is divided into two sections.

- The first section lists the appropriate launchings and includes information such as launch date and time, agency rocket designation(s), sponsoring country/countries, experiment discipline(s), peak altitude, and principal experimenter(s) for each flight included in the report.

- The second section contains the complete name and address of each experimenter included in the first section, so that persons interested in more details concerning the rocket flight or the experiment results can establish direct contact with the appropriate individual.

Document Frequency

The SRL report is normally issued monthly. The information contained in the monthly SRL report is summarized periodically in the *World Data Center A for Rockets and Satellites Catalogue of Data*.

*Available in hardcopy.

+This catalogue was published as two volumes. Volume 1 contains a cumulative listing, as of 31 December 1971, of successful sounding rocket launchings identified by WDC-A-R&S. Volume 2 contains the standard listings of artificial earth satellite and space probe launchings and of reports and reprints received during the report period.

Document Availability

The SRL report is mailed to various participants in COSPAR activities and to other interested scientists and institutions. Requests for the SRL report should be directed to WDC-A for Rockets and Satellites at the address given on page 3. Reports issued last year are available in hardcopy. Earlier issues are available on a roll of 16-mm microfilm or on microfiche.

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SPACEWARN Bulletins

Document Description

The SPACEWARN system is an international mechanism for the rapid distribution of information on satellites (spacecraft) and space probes. This system is managed for the Committee on Space Research (COSPAR) by the International Ursigram and World Days Service (IUWDS), a permanent service of the Union Radio Scientifique International (URSI) in association with the International Astronomical Union (IAU), the International Union of Geodesy and Geophysics (IUGG), and with close liaison with other International Council of Scientific Unions (ICSU) bodies. The IUWDS World Warning Agency for Satellites, which is operated by WDC-A-R&S, provides on behalf of COSPAR the international designation for each announced launching of spacecraft or space probe and issues biweekly the *SPACEWARN Bulletin*.

These bulletins serve as one mechanism for the distribution of satellite and space probe information. The material they contain is consistent with the *COSPAR Guide to Rocket and Satellite Information and Data Exchange* and various COSPAR resolutions; additional details may be found in the *COSPAR Information Bulletin* and other COSPAR reports.

The *SPACEWARN Bulletin* consists of the following four sections:

- A list of recent spacecraft launchings, identifying their official international designations

- Texts of satellite and space probe launch announcements received by IUWDS World Warning Agency for Satellites during the previous 2-week period, identifying spacecraft name, launch date and time, initial orbit characteristics, and a statement of the mission objectives

- Listings of spacecraft particularly suited for international participation such as: a. spacecraft with essentially continuous radio beacons on frequencies less than 150 MHz, or higher frequencies if especially suited for ionospheric or geodetic studies; b. spacecraft which provide telemetered information on a continuing basis; c. optical objects used for geophysical studies; and d. satellites useful for simultaneous observation programs with small cameras

- Launching reports including, as available, prelaunch and postlaunch information pertaining to project and experiment officials, spacecraft and experiment mission objectives and instrumentation, spacecraft configuration, etc.

Document Frequency

The *SPACEWARN Bulletin* is published every 2 weeks.

Document Availability

The *SPACEWARN Bulletin* is issued to COSPAR National Contacts for satellite information, Satellite Regional Warning Centers, and various leaders and participants in COSPAR activities. Individuals can be added to the mailing list only after concurrence from their National SPACEWARN Representative. For further information, write to:

IUWDS World Warning Agency for Satellites
World Data Center A for Rockets and Satellites
Code 601
Goddard Space Flight Center
Greenbelt, Maryland 20771
U.S.A.

Bulletins issued last year are available in hardcopy. Earlier issues are available on a roll of 16-mm microfilm or on microfiche.